

I CLAIM:

1. In a fuel injection device (22) for an internal combustion engine, the injection device (22) having a housing (34) with an injection region (42), having a recess (44) provided in the housing (34), and having at least two valve elements (46, 48), which are disposed coaxial to each other in the recess (44) and each cooperate with a respective valve seat (52, 56) in the injection region (42), wherein the inner valve element (48) is shorter than the outer valve element (46), wherein a loading device (57) is provided, which at least sometimes acts on the inner valve element (48) in the opening direction, wherein a control piston (92) is provided, which cooperates with the inner valve element (48), and wherein the control piston (92) has a pressure surface (102), which delimits a control chamber (104) and whose force resultant points in the closing direction, the improvement wherein the loading device (57) exerts an approximately constant opening force on the inner valve element (48), and wherein a fluid pressure prevails in the control chamber (104), which can be temporarily reduced.

2. The fuel injection device (22) according to claim 1, wherein the control piston (92) comprises a circumferential shoulder (94), and a first prestressing device (96) supported by the circumferential shoulder (94) and acting in the closing direction.

3. The fuel injection device (22) according to claim 2, further comprising a sealing sleeve (74), which includes a sealing edge that a second prestressing device (76) loads against the outer valve element (46), the first prestressing device (96) being supported on the sealing sleeve (74).

4. The fuel injection device (22) according to claim 1, wherein the inner valve element (48) is guided in a fluid-tight manner in the outer valve element (46), and wherein between the control piston (92) and the outer valve element (46), at least in some regions, an annular chamber (98) is connected to a low-pressure connection (28).

5. The fuel injection device (22) according to claim 2, wherein the inner valve element (48) is guided in a fluid-tight manner in the outer valve element (46), and wherein between the control piston (92) and the outer valve element (46), at least in some regions, an annular chamber (98) is connected to a low-pressure connection (28).

6. The fuel injection device (22) according to claim 3, wherein the inner valve element (48) is guided in a fluid-tight manner in the outer valve element (46), and wherein between the control piston (92) and the outer valve element (46), at least in some regions, an annular chamber (98) is connected to a low-pressure connection (28).

7. The fuel injection device (22) according to claim 1, wherein the control piston (92) comprises a control section (90), on which the pressure surface (102) is provided, and a transmitting section (84), which is disposed between the valve element (48) and the control section (90) and constitutes a separate part from the control section (90).

8. The fuel injection device (22) according to claim 2, wherein the control piston (92) comprises a control section (90), on which the pressure surface (102) is provided,

and a transmitting section (84), which is disposed between the valve element (48) and the control section (90) and constitutes a separate part from the control section (90).

9. The fuel injection device (22) according to claim 3, wherein the control piston (92) comprises a control section (90), on which the pressure surface (102) is provided, and a transmitting section (84), which is disposed between the valve element (48) and the control section (90) and constitutes a separate part from the control section (90).

10. The fuel injection device (22) according to claim 4, wherein the control piston (92) comprises a control section (90), on which the pressure surface (102) is provided, and a transmitting section (84), which is disposed between the valve element (48) and the control section (90) and constitutes a separate part from the control section (90).

11. The fuel injection device (22) according to claim 7, wherein the contact surface (88) of the control section (90) with the transmitting section (84) is spherically curved and the corresponding contact surface (86) on the transmitting section (84) is complementarily curved.

12. The fuel injection device (22) according to claim 8, wherein the contact surface (88) of the control section (90) with the transmitting section (84) is spherically curved and the corresponding contact surface (86) on the transmitting section (84) is complementarily curved.

13. The fuel injection device (22) according to claim 9, wherein the contact surface (88) of the control section (90) with the transmitting section (84) is spherically curved and the corresponding contact surface (86) on the transmitting section (84) is complementarily curved.

14. The fuel injection device (22) according to claim 10, wherein the contact surface (88) of the control section (90) with the transmitting section (84) is spherically curved and the corresponding contact surface (86) on the transmitting section (84) complementarily curved.

15. The fuel injection device (22) according to claim 1, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved.

16. The fuel injection device (22) according to claim 11, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved.

17. The fuel injection device (22) according to claim 12, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved.

18. The fuel injection device (22) according to claim 13, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved.

19. The fuel injection device (22) according to claim 14, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved.

20. The fuel injection device (22) according to claim 11, wherein the contact surface (80) of the inner valve element (48) with the control piston (92) is spherically curved and the corresponding contact surface (82) on the control piston (92) complementarily curved, and wherein the contact surfaces (82, 86) on the transmitting section (84) in relation to the control section (90) and the inner valve element (48) are each part of a common spherical surface whose center point lies on the central axis of the transmitting section (84).